AMATEUR RADIO DIGITAL COMMUNICATIONS

HAMVENTION 2023

19-21 May 2023 - Xenia, OH

Mission

To support, promote, and enhance digital communication and broader communication science and technology, to promote Amateur Radio, scientific research, experimentation, education, development, open access, and innovation in information and communication technology.

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Background / History

1981	Hank Magnuski KA6M and 44Net / AMPRNet
2011	Formation of ARDC to be the trustee of the 44Net address space by Brian Kantor WB6CYT
2019	Sale of IPv4 addresses & creation of endowment to fund ARDC operations and grants
2019	Sudden passing of WB6CYT
2020	Building a staff to manage operations including grants and technology

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Staff

Chelsea Párraga KF0FVJ, Grants Manager; Dan Romanchik KB6NU, Communications Manager; John Hays K7VE, Outreach Manager.
Jon Kemper KA6NVY, Technology Director; Merideth Stroh KK7BKI, Operations Manager; Rosy Schechter KJ7RYV, Executive Director.
(Yes, we all work remotely!)

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Resources

- 12 million legacy IPv4 routable Internet addresses which are allocated to licensed amateurs at no cost for non-profit and open access amateur radio projects

- An endowment providing a multi-million dollar distribution each year to non-profit and open access/source programs and projects via grants for:
  - Growth of Amateur Radio
  - Education & Scholarships
  - Research and Development.

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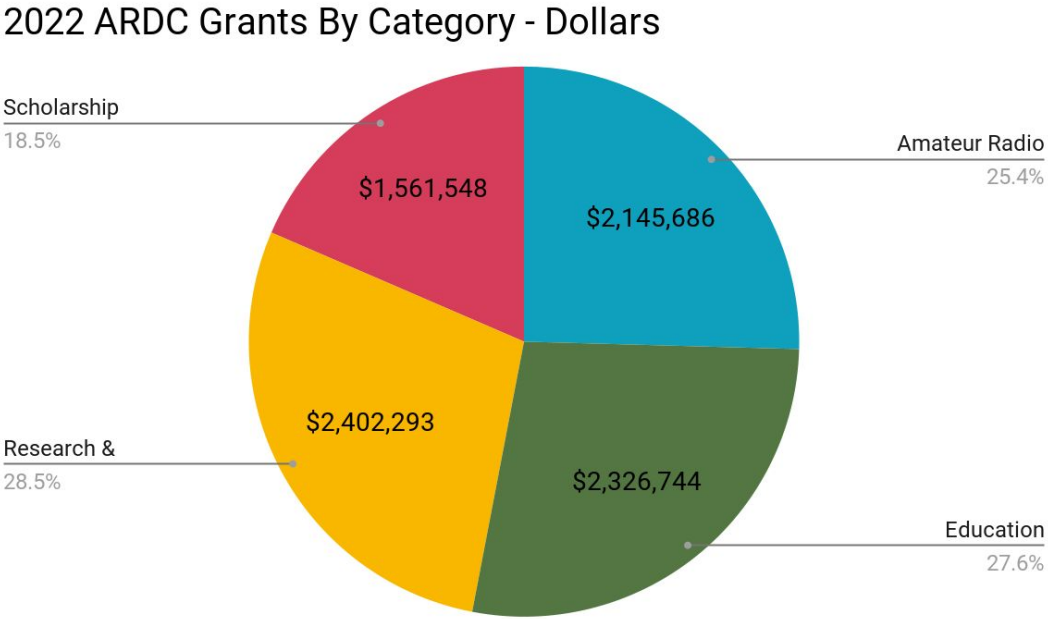
Grants!

2022 Grants



Number of grants made in 2022:

101 Grants

Dollars distributed in 2022:

~$8M*

Number of people directly impacted:

~14,000 People

**More exact totals will be provided in 2022 audited financials*

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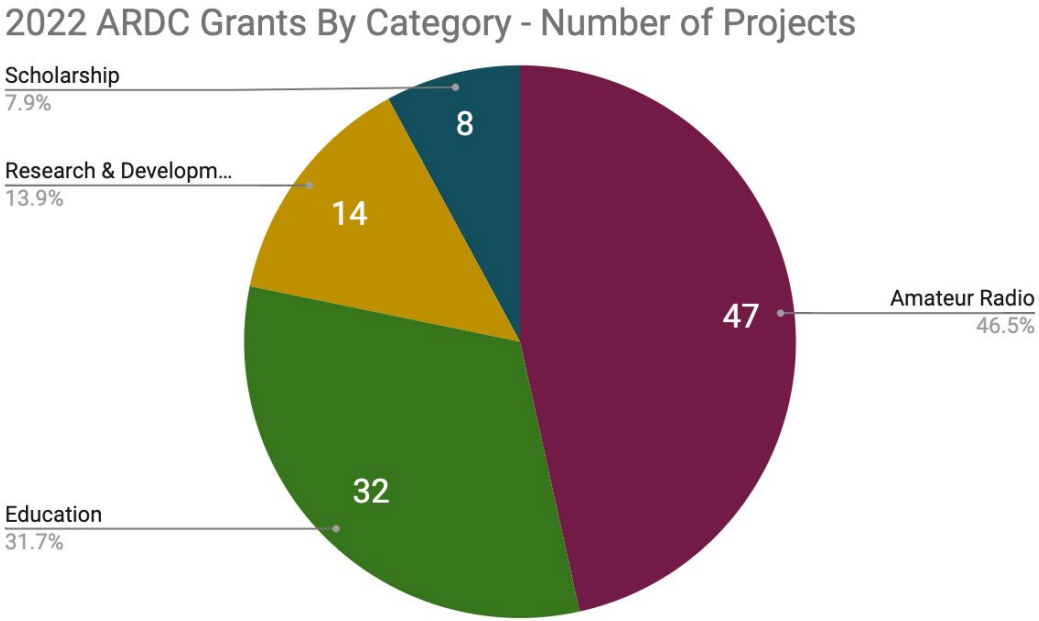
2022 Grants by Category



- Compared to 2021, R&D grew as a category from 14% to 28% (in dollars)
- We had:
  - 8 scholarship grants
  - 14 R&D grants
  - 32 education grants
  - 47 amateur radio grants

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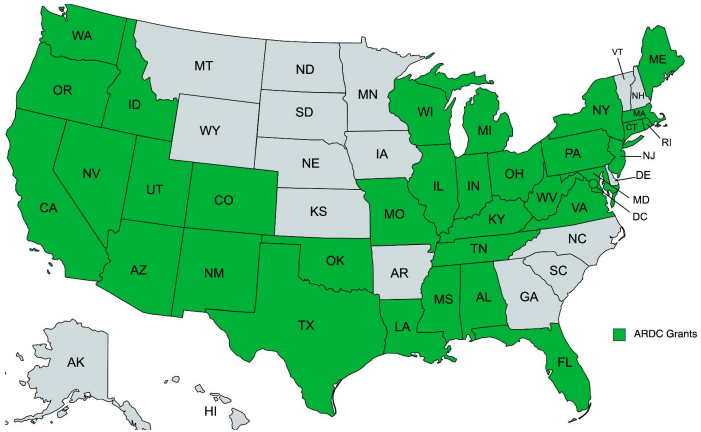

International Reach

2020: 9% international projects (2)

2021: 10% international projects (6)

2022: 13% international projects (13)

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Grants Update

All-Time Number of grants made:

187 Grants

All-Time Dollars distributed:

~$20,900,000

Number of people directly impacted:

71,193 People

Pictured: Left are students at Norwich Free Academy, Right are Hampton University Scholarship recipients

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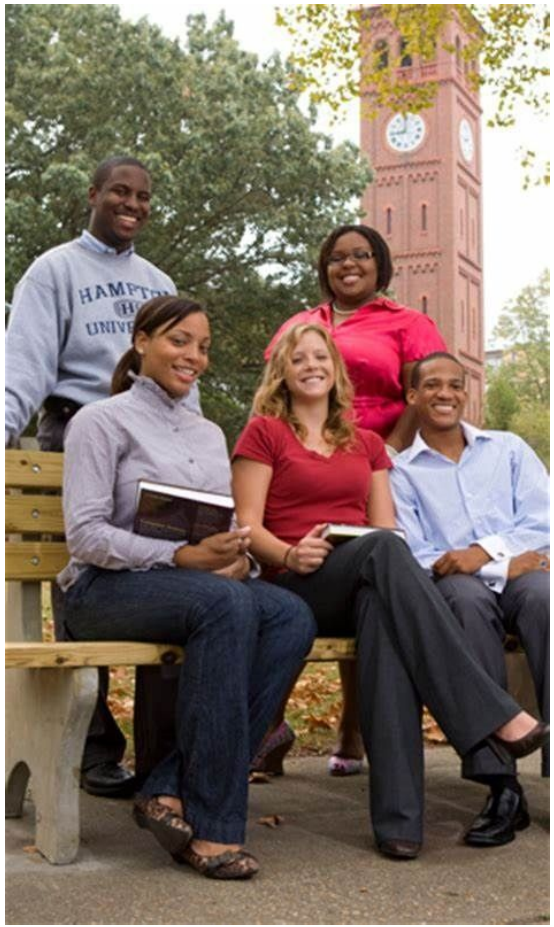

Applying for a Grant

Apply anytime!
The earlier in the cycle the better

Upcoming 2023 review dates:

- July 1
- October 1

Information: ardc.net/apply/

Apply: grants.ardc.net

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Grantee Requirements

ARDC makes grants to **nonprofit organizations,** which fall into the following categories:

- **US IRS 501(c)(3) Non-Profit Public Charities** or their International Equivalents
- **Non-Profit Educational Institutions** (US and International)
- **Government projects** that align with our mission
- Groups and individuals sponsored by an entity meeting the above requirements. This is known as **fiscal sponsorship**.

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Photo Credit: K7UAZ University of Arizona Amateur Radio Club, who received a grant to renovate their HF station and satellite station

Grant Category: Support and Growth of Amateur Radio

- Clubs
- Licensing classes
- Continuing education
- Community outreach
- Club station update or enhancement
- Repeater and network infrastructure
- Certain emergency communications projects

*We are particularly interested in projects which include **underrepresented individuals and groups.***

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Grant Category: Education

- Scholarships
- K-12 school programs
- College programs
- Programs aimed at underserved groups.

ARDC funds scholarships indirectly through other programs.

Students try their hand at fox hunting at Woodridge Middle School.

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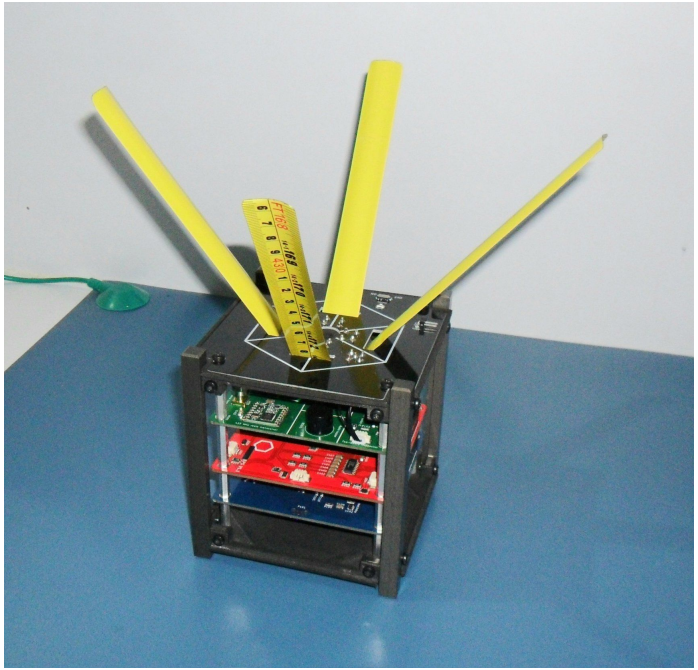

Photo Credit: Paradox Sonic Space Research Agency, who is developing India's first open-source satellite

Grant Category: Research and Development

Advancing the state of the art in amateur radio and communication science & technology.

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Applying for a Grant – Key Points

- ✓ Review **ardc.net/apply** and all subpages
- ✓ Most projects take about **one year** to complete.
  - **First-time projects/groups:** one 1-2 year grant to start
  - **Large projects:** consider a multi-phase approach
- ✓ **Line up external resources** (e.g. facilities, personnel, partners, etc.)
- ✓ **Include all expenses** (e.g. taxes, fees, shipping, professional services, indirect costs, etc.)
- ✓ **Select modern, quality, items** that will have an appropriate service life.
  - *Don't "gold plate" and don't under specify.*
- ✓ Have a good **project plan** including who, when, where and why.

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Applying for a Grant - GAC Review

ARDC looks for grants that further the following goals

- Broad reach
- Social over commercial benefit
- Inclusion of underrepresented groups
- Empowerment of individuals, and distributed rather than centralization
- Preservation of the right to innovate

Open Access Requirement

- ARDC-funded work should be open sourced/access and shared

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How will your project make the world a better place?

Applying for a Grant – The Process

Important notes!

- After the application deadline, it can take 60–120 days for funding decision.
- International Funding can take extra time
- If ARDC needs more information, we will contact you.

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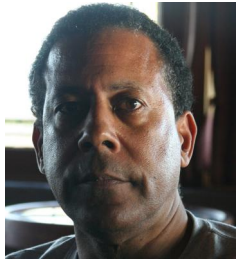
Grants Advisory Committee (GAC)

Bob Witte, K0NR
Chair



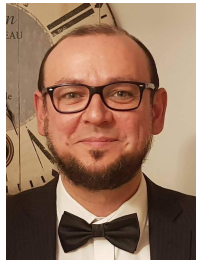
Dewayne Hendricks
WA8DZP

Chelsea Párraga, KF0FVJ
Grants Manager*

John Hays, K7VE
Staff Lead*

Brian Mileshosky
N5ZGT

Don Prosnitz
N9PRZ



Leandro Indrusiak
G5LSI

Doug Kingston
KD7DK

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*Non Voting Member

GAC cont’d (joined 2023)

Katie Allen, WY7YL

Judi Clark, KK6CZU

Dennis Dickerson, AC0P

Jim Idelson, K1IR

Kristin Paget, KJ6GCG

Bill Thomas, WT0DX

Randy Wilkinson, W4LKS

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Applying for a Grant – Talk to Us!

- Visit our booth #1302 here at **Hamvention**
- Members of our staff are here to hear from you and to answer your questions
- Email questions about grants to giving@ardc.net

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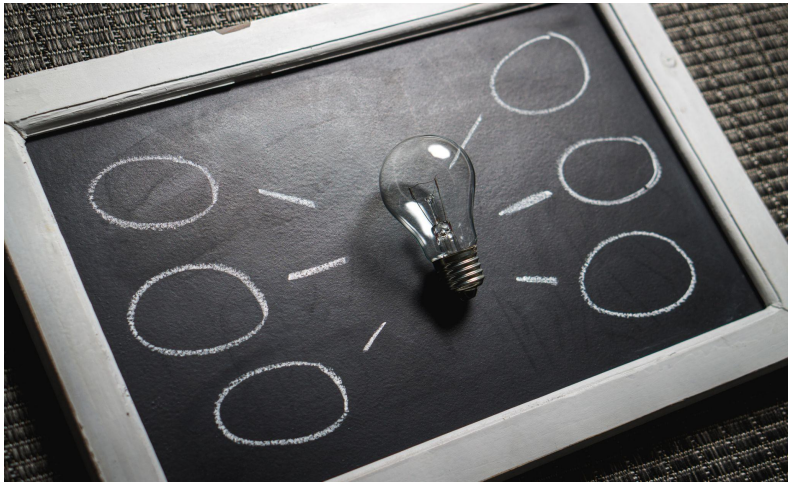
44Net

What is 44Net / AMPRNet?



a. Facebook for hams?

b. An automated defense network run by Cyberdyne Systems Corp?

c. An autopatch network in the UK?

d. Something else?

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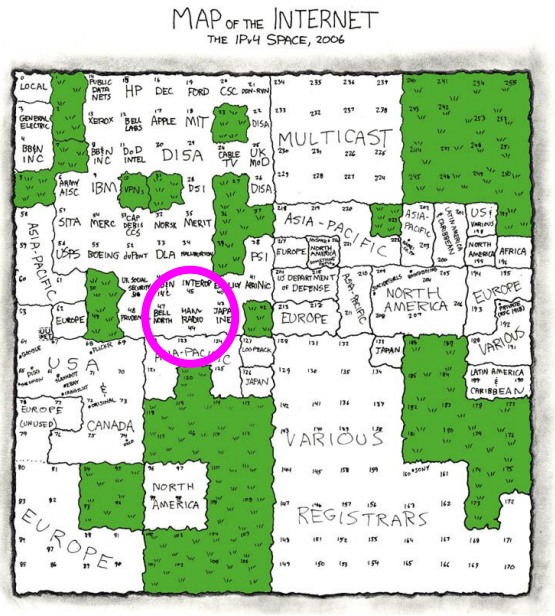
44Net



https://xkcd.com/195/

44Net = Block 44

Now 44.0.0.0/9, 44.0.0.0/10

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44Net, aka AMPRNet

AMPRNet = “AMateur Radio Packet Network”

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Built & operated by hams for hams

- Block of ~12 million class A publicly routable, static IPv4 addresses
- Allocated in 1981 and set aside for amateur radio users worldwide
- Addresses are mainly issued to licensed to hams for non-commercial use
- Licenses are free to use
- Licensee is responsible for obtaining connectivity

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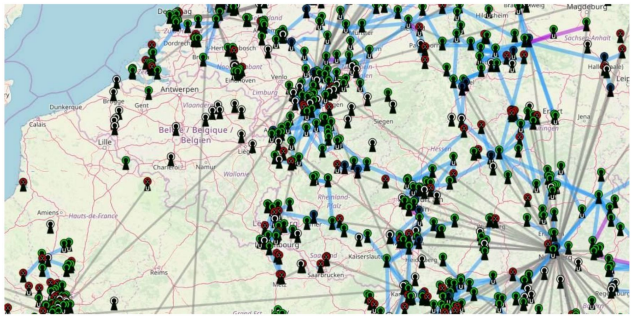
44Net Use Cases

2022

THE COMMUNITY

The Hamnet community consists of licensed amateur radio operators & clubs, they are....very fast...spreading the network worldwide.



https://hamnet.eu/site/community.html

- HAMNET (Highspeed Amateur Multimedia NETwork)
- IRLP (Internet Radio Linking Project)
- HAMWAN (IP-based digital network for amateur radio)
- EMCOMM
- Internet of Things (IoT)
- IP-IP Mesh
- Repeater Infrastructure
- SDR
- Email

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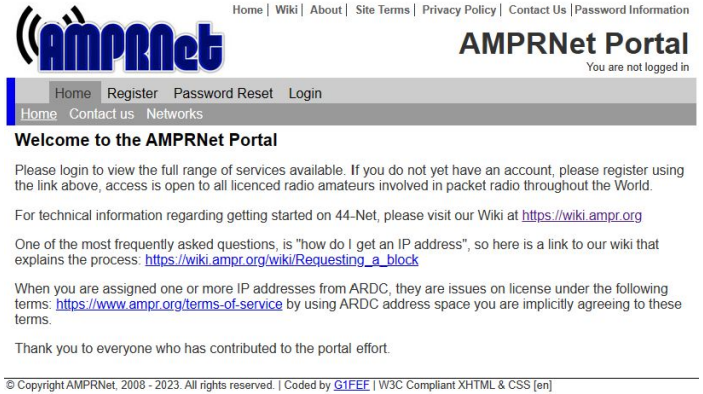
Accessing 44Net- (Legacy Portal)


Home | Wiki | About | Site Terms | Privacy Policy | Contact Us | Password Information
AMPRNet Portal
You are not logged in
Home Register Password Reset Login
Home Contact us Networks
Welcome to the AMPRNet Portal
Please login to view the full range of services available. If you do not yet have an account, please register using the link above, access is open to all licenced radio amateurs involved in packet radio throughout the World.
For technical information regarding getting started on 44-Net, please visit our Wiki at https://wiki.ampr.org
One of the most frequently asked questions, is "how do I get an IP address", so here is a link to our wiki that explains the process: https://wiki.ampr.org/wiki/Requesting_a_block
When you are assigned one or more IP addresses from ARDC, they are issues on license under the following terms: https://www.ampr.org/terms-of-service by using ARDC address space you are implicitly agreeing to these terms.
Thank you to everyone who has contributed to the portal effort.
© Copyright AMPRNet, 2008 - 2023. All rights reserved. | Coded by G1FEF | W3C Compliant XHTML & CSS [en]

portal.ampr.org

- Some connected by wireless links and Internet tunnels
- Composed of a worldwide series of subnets
- Some point-to-point radio links to adjacent nodes, while others are isolated
- IPIP Mesh tunnels
- VPN tunnels
- BGP-announced Internet gateways

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Use-case: The Garbandy Tower (372m)

- Mounted on a 22-floor base
- located in the Netherlands
- houses 2m, 70cm, analog and DSTAR amateur radio equipment utilizing 44Net connectivity
- Includes IP Cameras using HAMNET

Photo courtesy Rob Janssen - PE1CHL

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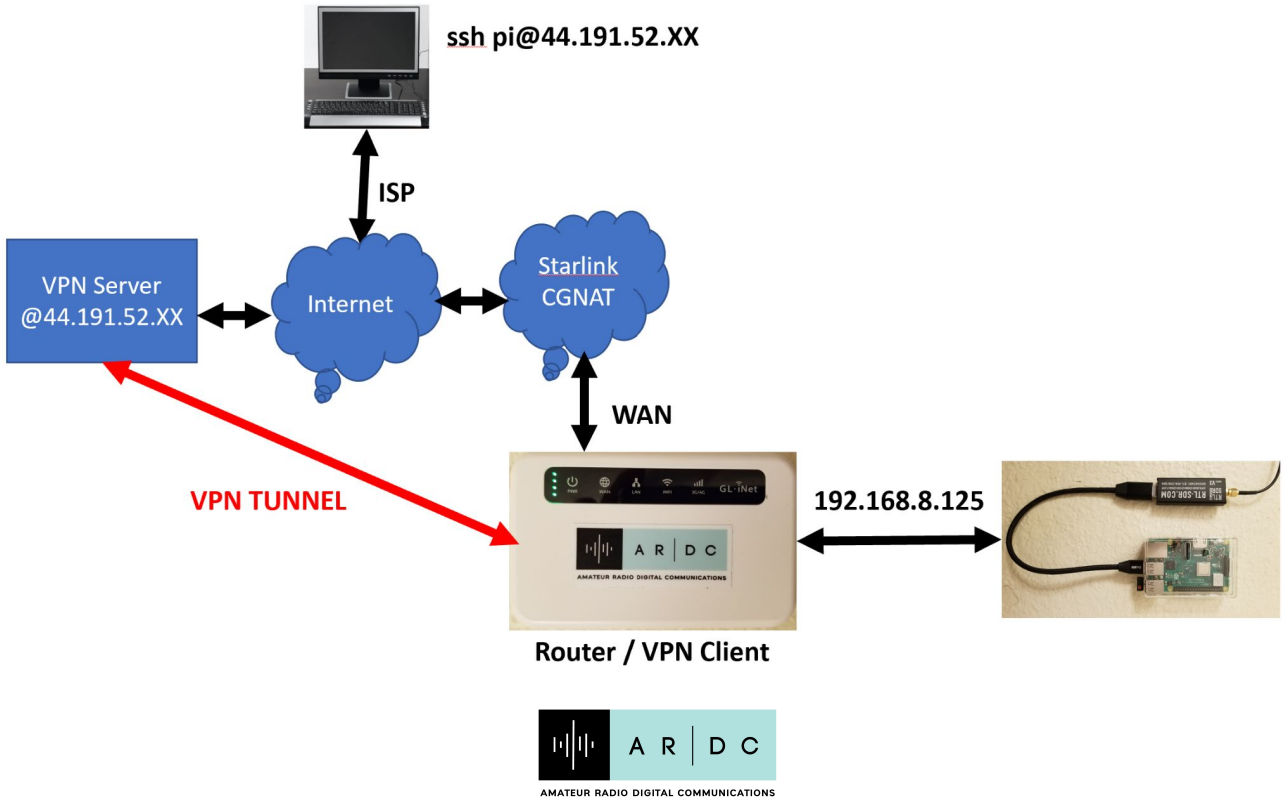
Use-case: IoT using a Raspberry Pi Server



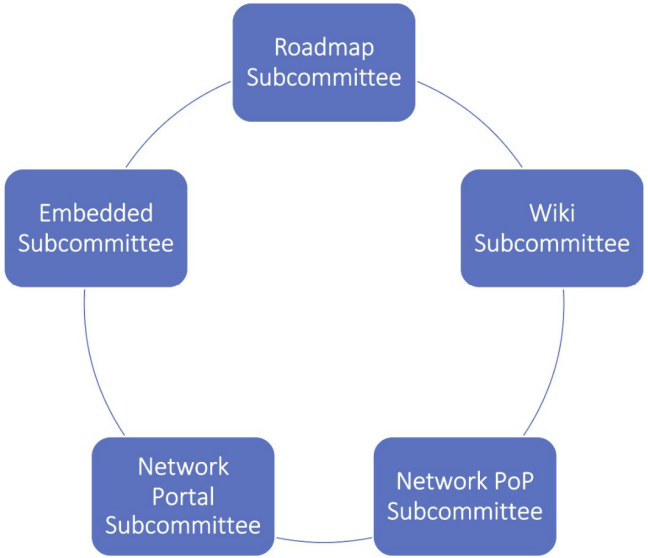
Technical Advisory Committee (TAC)

The TAC is a group of community volunteers that works with ARDC to evolve 44Net technology, architecture, and policy proposals.

2023 Technical Advisory Committee (TAC)

- **Staff Lead:** Jon Kemper – *KA6NVY (ARDC Technical Director)*
- **Interim Chair:** Pierre Martel – *VE2PF*
- Adam Lewis – *KC7GDY*
- Zachary Seguin – *VA3ZTS*
- Rob Janssen – *PE1CHL*
- Chip Eckardt – *W9OQI*
- Dave Gingrich – *K9DC*
- Rich Gopstein – *KD2CQ*
- Alvaro Prieto – *KC2VVE*
- Ian Redden – *VA3IAN*
- Randy Neals – *VE3RWN/W3RWN*

TAC Subcommittees



Roadmap Subcommittee:
Develop an architectural roadmap for future 44Net services and infrastructure.

Wiki Subcommittee:
Catalog 44Net use-cases and create substantive updates to the Wiki.

Network Portal Subcommittee:
Build and launch an upgraded 44Net management portal Minimum Viable Product.

Network PoP Subcommittee:
Develop and measure a 44-Net Proof-of-Concept Point-of-Presence.

Embedded Subcommittee:
Entry level embedded appliance reference design for 44Net.

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More Information

Website: **ardc.net**

- Sign up for the newsletter
- Sign up for the 44Net Mailing List
- Consider volunteering

44Net

- Portal: portal.ampr.org
- Wiki: wiki.ampr.org
- ardc.group.io

Reach out any time! *contact@ardc.net*

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Thank you!

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